

WHAT IS CLAIMED IS:

1. An image forming apparatus, comprising:
  - an upper body;
  - an image reading device that is mounted in the upper body and that reads an image on an original document;
  - a lower body that is placed under the upper body;
  - an image forming device that is mounted in the lower body that forms the image on a recording medium;
  - a hinge member that connects the upper body and the lower body, the upper body being pivoted about the hinge member between an open position where the upper body is open with respect to the lower body and a close position where the upper body is closed with respect to the lower body;
  - a groove that is formed on the lower body;
  - a link member that is pivotally connected to the upper body at one end and connected to the groove at the other end so as to slide in the groove; and
  - an elastic member that is connected to the lower body at one end and the link member at the other end, the elastic member being deformed when the link member moves together with the upper body, an amount of deformation of the elastic member increasing when the upper body is moved from the open position to the close position, wherein the groove has a first range where a moment to pivot the upper body to the close position is generated.
2. The image forming apparatus according to claim 1, wherein the groove further includes a second range where a moment to pivot the upper body toward the open position counterpoises the moment to pivot the upper body toward the close position so that the upper body is held still at any position in the second range.
3. The image forming apparatus according to claim 1, wherein the groove further includes a second range where the moment to pivot the upper body toward the open position is generated.
4. The image forming apparatus according to claim 3, wherein the groove has a third range between the first range and the second range, and the third range is where the moment to pivot the upper body toward the open position counterpoises the moment to pivot the upper body toward the close position.
5. The image forming apparatus according to claim 4, wherein the groove has a fourth range between the first range and the third range,

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the fourth range is where a moment to pivot the upper body toward the open position is generated,

the groove has a fifth range between the second range and the third range, and the fifth range is where the moment to pivot the upper body toward the close position is generated.

6. The image forming apparatus according to claim 1, wherein the link member has a pair of walls that are formed apart, and the elastic member is connected to the link member in between the walls.

7. The image forming apparatus according to claim 6, further comprising another link member, wherein the link members are connected via a bridge such that the link members do not move relative to each other.

8. The image forming apparatus according to claim 7, further comprising a second groove having a first range where a moment to pivot the upper body to the closed position is generated, and wherein said another link member is connected to the second groove so as to slide in the second groove.

9. The image forming apparatus according to claim 8, wherein when the upper body is pivoted toward the open position, the bridge moves towards a downward position to provide a space between the upper body and the bridge, and when the upper body is pivoted toward the close position, the bridge moves in between the upper body and the lower body and covers the space.

10. The image forming apparatus according to claim 9, wherein the image forming device includes a fixing device that heats the formed image and fixes the formed image onto the recording medium, and the bridge moves towards the downward position to cover the fixing device when the upper body is pivoted toward the open position.

11. The image forming apparatus according to claim 1, further comprising:  
 an engaging portion provided in the upper body;  
 an engaged portion that engages with the engaging portion when the upper body is pivoted to the close position so as to hold the upper body stationary, the engaged portion disengaging from the engaging portion so as to allow the upper body to pivot; and  
 an operating portion that is provided in the upper body and operated to disengage the engaging portion from the engaged portion.

12. The image forming apparatus according to claim 11, wherein the image reading device is a flat bed type image scanner including an image sensor that moves along the original document to read the image from the original document.

13. An image forming apparatus comprising:

an upper body;

an image reading device that is mounted in the upper body and that reads an image on an original document;

a lower body that is placed under the upper body;

an image forming device that is mounted in the lower body that forms the image on a recording medium;

a hinge member that connects the upper body and the lower body, the upper body being pivoted about the hinge member between an open position where the upper body is open with respect to the lower body and a close position where the upper body is closed with respect to the lower body;

a groove that is formed in the lower body;

a link member that is pivotally connected to the upper body at one end so as to pivot about the upper body and connected to the groove at the other end so as to slide in the groove;

an elastic member that is connected to the lower body at one end and connected to the link member at the other end, the elastic member being deformed when the link member moves together with the upper body, an amount of deformation of the elastic member increasing when the upper body is moved from the open position to the close position, wherein the groove has a first range and a second range, the first range is inclined such that a force acting on the link member generated in accordance with a weight of the upper body is greater than a force acting on the link member generated in accordance with a load of the elastic member, and the second range is inclined such that the force acting on the link member generated in accordance with the load of the elastic member is greater than or equal to the force acting on the link member generated in accordance with the weight of the upper body.

14. The image forming apparatus according to claim 13, wherein the second range is inclined such that the force acting on the link member generated in accordance with the load of the elastic member is greater than the force acting on the link member generated in accordance with the weight of the upper body, the groove has a third range between the first range and the second range, and the third range is inclined such that the force acting on the link member generated in accordance with the load of the elastic member counterpoises the force acting on the link member generated in accordance with the weight of the upper body.

15. The image forming apparatus according to claim 14, wherein the groove has a fourth range between the first range and the third range, the fourth range is inclined such that the force acting on the link member generated in accordance with the load of the elastic member is greater than the force acting on the link member generated in accordance with the weight of the upper body, the groove has a fifth range between the second range and the third range, and the fifth range is inclined such that the force acting on the link member generated in accordance with the weight of the upper body is greater than the force acting on the link member generated in accordance with the load of the elastic member.

16. The image forming apparatus according to claim 8, wherein the second groove further includes a second range where a moment to pivot the upper body toward the open position counterpoises the moment to pivot the upper body toward the close position so that the upper body is held still at any position in the second range.

17. The image forming apparatus according to claim 8, wherein the second groove further includes a second range where the moment to pivot the upper body toward the open position is generated.

18. The image forming apparatus according to claim 17, wherein the second groove has a third range between the first range and the second range, and the third range is where the moment to pivot the upper body toward the open position counterpoises the moment to pivot the upper body toward the close position.

19. The image forming apparatus according to claim 18, wherein the second groove has a fourth range between the first range and the third range, the fourth range is where a moment to pivot the upper body toward the open position is generated, the second groove has a fifth range between the second range and the third range, and the fifth range is where the moment to pivot the upper body toward the close position is generated.